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Research and Technology Needs

Focus on: Force Protection Combating Terrorism Surveillance Technology

"Countering the Terrorist Kill Chain"

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(CTTTF)

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Overview

- **Combating Terrorism Technology Task Force (CTTTF)**
- Prior Years' Efforts
- CTTTF Outreach & Interaction with Joint IED Defeat Task Force
- Current Year Efforts
- Challenges

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CTTTF Project Funding Summary

Deputy Secretary of Defense

- **Phase 1 Key Deliverables**
  - Accelerated Thermobaric Weapon
  - Nuclear Quadrupole Resonance
  - Conventional Air Launched Cruise Missile
  - LOGIR
  - Backscatter X-Ray Van
- **Funding**
  - DERF – FY01: $181M
  - DERF – FY02: $212M
- **Recipients**
  - Army
  - Navy
  - DTRA
  - TSWG

- **Phase 2 Key Deliverables**
  - Passive Attack Weapon
  - Crash Prompt Agent Defeat
  - Thermobaric Hellfire
  - Lightweight Sensor Package for Dragon Eye UAV
  - Massive Ordnance Air Blast
  - Water Purification Pen
- **Funding**
  - Quick Reaction Special Projects: $78M

National Counterterrorism / Counterinsurgency Integrated Test & Evaluation Center

Deputy Secretary of Defense

- Located at Yuma Proving Ground
- Purpose of Center is to test & evaluate capabilities beyond detecting & defeating IEDs
  - To include enhancements for testing of other counterterrorism and counterinsurgency technologies
- Evaluate technical performance and utility of prototype systems in a tactically significant environment, against representative threats
- Provide recommendations on deployment & follow-on production of prototype systems

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Program Overview
CTTTF S&T Resources

Deputy Secretary of Defense

- Defense Advanced research Projects Agency (DARPA)
- Naval Research Laboratory (NRL)
- Office of Naval Research (ONR)
- Army Research Laboratory (ARL)
- Air Force Research Laboratory (AFRL)
- Army Night Vision Laboratory (NVL)
- Army Cold Regions Research & Engineering Laboratory (CRREL)
- Los Alamos National Laboratory
- Sandia National Laboratory
- Pacific Northwest National Laboratory (PNNL)
- Lawrence Livermore National Laboratory
- Massachusetts Institute of Technology – Lincoln Laboratory (MIT-LL)
- National Reconnaissance Office (NRO)
- National Security Agency (NSA)
- Defense Intelligence Agency (DIA)
- Defense Threat Reduction Agency (DTRA)
- Department of Energy
- Department of Homeland Security
- Department of State
- Central Intelligence Agency
- Federal Bureau of Investigations
- Space & Naval Warfare Systems Command (SPAWAR)
- Electronic Systems Command (ESC)
- Army Communications Electronics Command (CECOM)
- Army Soldier and Biological Chemical Command (SBCOM)
- Joint Information Operations Center (JIOC)
- National Geospatial Intelligence Agency (NGA)
- Joint Warfare Analysis Center (JWAC)
- Special Operations Command (SOCOM)

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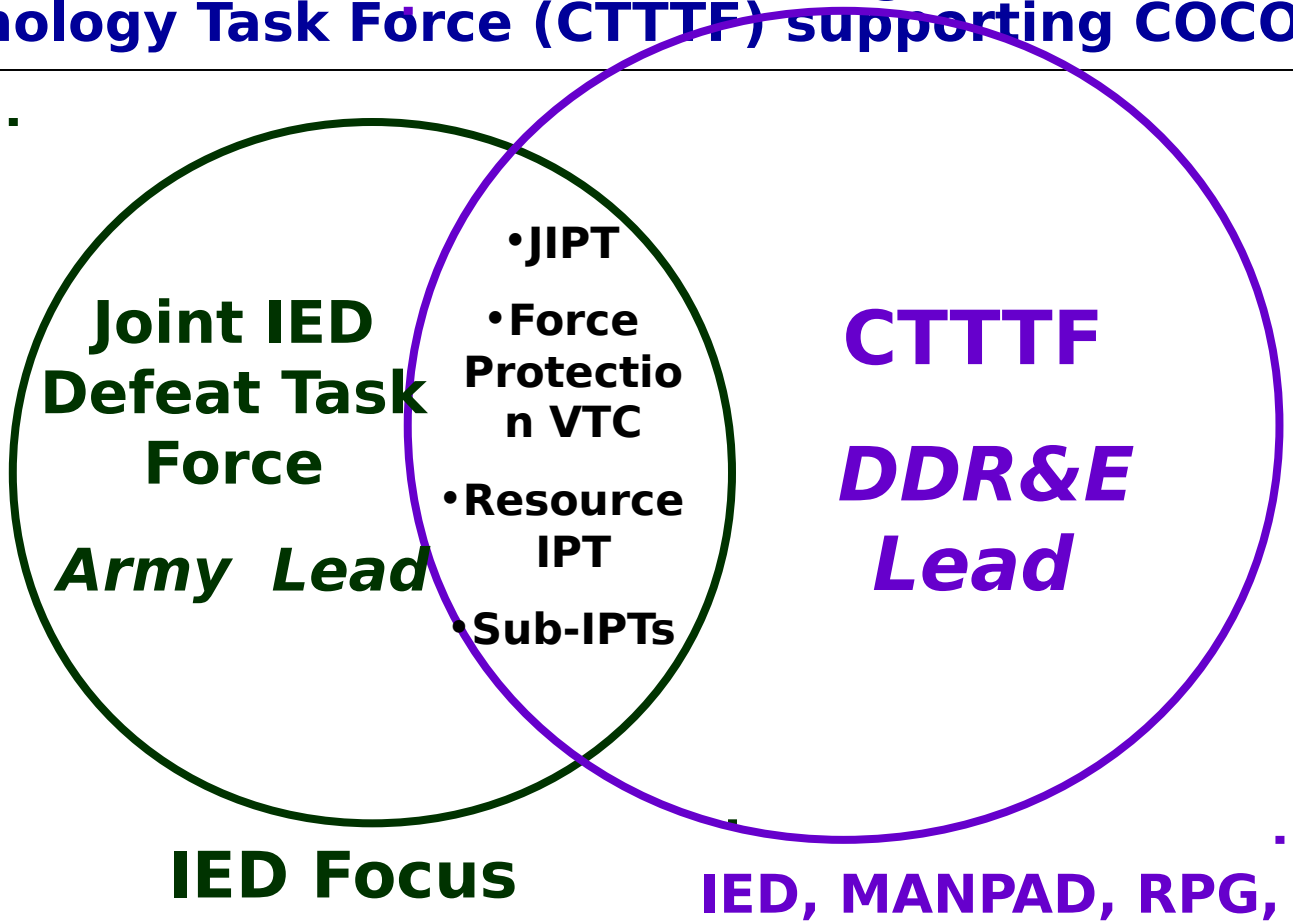
Critical "Kill Chain" Steps
CTTTF Areas of Investment

- Intelligence capability enhancements
- Surveillance and reconnaissance
- Tagging, tracking and locating
- Communications and information sharing
- Deterrence/Dissuasion/Information Operations
- Identification
- Detection
- Defeat
- Crisis Management Capability – Mass Kidnappings
- Interagency/coalition coordination

Interaction of Joint IED Defeat Task Force and CTTTF

- Joint IED Task Force and Combating Terrorism Technology Task Force (CTTTF) supporting COCOMs



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Challenges

- **Accelerate the transition of technologies for counter insurgency / combating terrorism**
  - Defeat IED/VBIEDs, with an eye toward next threats
  - Consider IEDs within the context of counter insurgency operations
- **Exploit DoD, OGA, industry, & private sector technology bases to pre-empt an adaptive adversary**
  - Increasing reliance on intelligence sharing
  - Prototyping must be able to operate inside the adaptive adversary's OODA loop

More Challenges

- **Rapid prototyping requires close coordination between developer, tester, trainer, end-user, and sustainer**
  - **End-user acceptance of prototypes in field condition varies**
  - **Deployment and sustainment of proven technologies remains the long pole in the tent**

Summary

- **CTTTF leads the identification of mature technologies to address counter-insurgency / combating terrorism needs**
  - Weekly VTC
    - Communicate needs
    - Discuss technological solutions
    - Suggest alternate sourcing for mature technologies (JRAC)
    - Test status update on ongoing technology development
  - Small Group Review
    - Vet proposed technology solutions
  - Rapid Reaction/New Solutions
    - Fund late-stage RDT&E
    - Devote resources to test center upgrades
    - Fund prototypes for in-theater evaluation
  - CTTTF Supports Deployment
    - More difficult: Initial acceptance in field, follow on procurement, development of architecture

Planned & Ongoing FY05 Projects

- **IED Threat Detection**
  - RF Phenomenology
  - JSTARS GMTI enhancements (AF)
  - Laser Induced Breakdown Spectroscopy (ARL)
  - Vigilant Eagle
  - FOPEN
  - RF Emissions
  - Standoff Detection using Raman Technology
  - Limit
- **Info Analysis & Fusion**
  - Voice Authentication (Biometrics Management Office)
  - Biometrics field capability
- **IED Threat Defeat**
  - Compass Call enhancements
  - Disabling Captured Enemy Ammunition and Unexploded Ordnance
  - Scorpion
  - METRO
- **Intelligence**
  - Counter Insurgency Pattern Assessment R&D plus Augmented Reality
  - Electronic Personal Market Survey
  - Spoke
  - Project Intent
  - Predictive Technical Preparation of the Battlespace

Planned & Ongoing FY05 Projects

- **Surveillance & Reconnaissance**
  - Sonoma
  - Smart Dust (SOCOM)
  - SIGINT TVO (NRO/NSA)
  - CT/CBRN Tool (SOCOM)
  - Adv Optical Exploitation
  - Video tracking
  - Buried Cache & Target Detection
  - WATCH IT
  - Video Exploitation (DARPA)
  - Video Exploitation of PTDS (LLNL)
  - Border Surveillance Capabilities
  - Tagging, Tracking and Location Video Exploitation (Point Mugu)
  - Detection of Unintended Emissions (MIT/LL)
  - Wire Detection – MIT(LL)/JASONS Phase I
  - Cube Antenna (DIA)
- **Fielding, CONOPS, Support**
  - Yuma Proving Grounds – Sustainment plus improvement
- **Other**
  - Volumetrically Controlled Manufacturing for IED Armor
  - Master Maritime
- **Communications / Info Dissemination**
  - Asymmetric Data Retrieval
  - Optical communications link (NRL & SOCOM)
  - WIMAX